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Village libraries, farm libraries, and savings banks are deserving of warm encouragement, as being useful to the class of labourers, the former during winter afford instruction and amusement, and the latter during harvest a safe treasure-house for their additional wages, which in two many instances are invested in the beer shop and ale house.

The foregoing details may seem beneath the notice of many, and too trifling to occupy their attention, but life itself is made up of small things, and it is by attention to these that the comfort of life is improved, and the condition of man is raised.

On the Financial Economy of Savings' Banks. By J. W. WOOLLGAR.

[Read before the Statistical Section of the British Association at York,
September 28th, 1844.]

THE subject of this paper has acquired a sudden interest, through a recent Act of the Legislature, the true bearings of which are as yet very slightly known. The chief feature of that law is generally supposed to be a reduction of the rate of interest, yet a more important one is to be found in the scope now first given for economy in management.

As the law before stood, all banks were compelled to reserve 7s. 7½d. per cent. on their investments with the Commissioners, for the purposes of management; and in case there was a surplus, (as, in fact, there usually was,) it was to be returned to the Commissioners, and by them held without interest, though nominally it continued the property of the bank. By the present Act, the compulsory reserve is limited to 4s. 2d. per cent., thereby opening an important inquiry, which the managers of every bank must enter upon before the 20th November next. The necessity for doing this arises from their obligation to fix the rate of interest thereafter to be allowed to the depositors, a rate which (it will be conceded) ought to be regarded, as far as possible, as a permanent one.

Much uncertainty appears to prevail among managers; accompanied, however, with a desire to effect no greater reduction than is absolutely necessary. An insufficient knowledge of the requisite data, and of the bearings which they severally have upon the solution of the question, will (it is feared) induce not a few of these institutions to adopt a lower rate of interest than they ought to do, upon the principle of taking "the safe side." Such a result may perhaps be assisted by the interest tables recently issued from the office of the certifying barrister, (as a matter of accommodation to banks and not of injunction,) since these tables are applicable to no rate between 2l. 18s. 4d. and 3l. 0s. 10d. But managers should not allow themselves to be influenced at all by this circumstance; for tables at intermediate rates will doubtless be published, or they can be computed at a trifling cost. Moreover, in the application of any table, when a proper system of accounts is employed, it is quite immaterial whether the rate of interest be integral or fractional.

The statistical returns from the different banks, which are collected in Mr. Pratt's "History of Savings' Banks," do not include the *expenses of management*. There is no doubt that, if a comparison of these expenses were to be instituted, it would be found that some banks are conducted *savingly*, and others *extravagantly*, the extent of the variation being much greater than what ought to exist, when the simple mechanism of these institutions is considered.

In investigating the formula hereafter given, two propositions have suggested themselves, very desirable to be adopted by the managers of banks, as tending greatly (and especially the first) to effect a steadiness in the elements, and a constancy in the results, of calculation.

The data necessary to determine the future rate of interest to the depositors are, 1. The capital invested with the Commissioners. 2. The expenses of management, distinguishing those of a constant character from those which vary nearly in proportion to the extent of business. 3. The proportion (over and above the management fund existing at the beginning of any year) of money lying unproductive in the treasurer's hands, to be taken at a per centage upon the invested capital. 4. The incidental profit to the bank, arising from non-payment of interest on fractional sums, and for fractional times, and also for the period prescribed between notice of, and actual repayment of a deposit. Each of these items should be ascertained from the experience of the last five or seven years; and should the capital have varied considerably in the interval, the annual average obtained should be adjusted to what it probably would have been if the capital had always stood at its present amount.

Using then these symbols:—

r' = the interest of 1*l.* for a year, at the new Government rate.

r = the like, to be allowed to the depositors.

f = the management fund at the closing of the present year's account.

h = the capital invested with the Commissioners. } at the same
 $f + h e$ = the treasurer's balance. } period.
 $h(1 + e)$ = the depositors' fund.

$p + h q$ = the year's expenses of management.

n = the profit arising from the course of dealing.

I find that the value of r , the rate of interest sought, is expressed by the following formula—

$$r = \frac{r' - q}{1 + e} - \frac{p - n}{h}.$$

Now, it is obviously of the greatest importance that the value in question should remain constant; and my object in using algebra for a purpose to which probably it has never before been applied was to see how far such an object was attainable.

An examination of the formula shows, that by far the greater part of the value resides in the first member of it; and this contains no quantities but what are either fixed, or in the power of the managers so to make them. The variation, then, practically resides in the second member, and if the numerator of that fraction could be deemed constant, the whole value would vary inversely as the capital of the bank, and so long as n remains less than p , (which I think may safely be assumed will be the case in practice,) the whole value of the formula will increase in a slight degree as the amount of capital increases, and *vice versa*. There is a little uncertainty inevitably attending the quantity n , which will render it desirable in practice to adopt a rate of interest less by a very small quantity than is furnished by the formula: two or three pence will in my judgment be sufficient for this end.

I will conclude by stating the two points which are so desirable for

securing steadiness in the financial condition of a Savings' Bank. First, that the expenses of management be limited to an amount, compounded of a fixed sum and a per centage on the invested capital; and (as a necessary consequence of such a rule) that the actuary's salary (which forms a large portion of those expenses) be regulated upon the same principle. This method will not only promote the principal end, but also will be found far more satisfactory than the common mode of extending salaries in an irregular and capricious manner. Secondly; that the sum allowed to remain in the treasurer's hands be limited to a per centage on the invested capital, in addition to the management fund. It is usual to fix by the rules an absolute limit, whence it has frequently happened, that the gradual enlargement of business has rendered that limit inapplicable, and the whole has been left to the treasurer's discretion. Hitherto such a practice has been attended with no other effect than to diminish the surplus fund; but managers should now be aware that altered circumstances require such a cause of diminished profit to be restricted within narrow bounds.*

I submit that, by a due attention to the principles illustrated in this paper, managers of Savings' Banks will be enabled to fulfil their duties satisfactorily; and with justice both to the officers and the depositors.

Tables of Accidents brought to the Stockport Infirmary, and attended by the House-Surgeon, in the Years 1833, 1834 and 1835. By SAMUEL GASKELL, Esq., formerly House-Surgeon to the Institution.

[Read before the Statistical Section of the British Association at York, September 27th, 1844.]

THE interest which has been excited with regard to the number and severity of accidents occurring in different trades, may render the results of a careful registry kept for some time in the above infirmary worthy of present publication. The population of Stockport, in 1831 and in 1841, was as follows:—

Townships.	1831	1841
Stockport	25,469	28,419
Brinnington	3,987	5,331
Heaton Norris	11,238	14,626
Total	40,694	48,376

From the very limited data which I possess for making any estimate of the number of persons employed, as compared with those unemployed. I should think it to be about 10,000, chiefly factory operatives; which number is stated, however, only as an approximation.

Between August 1833 and May 1835, 569 Accident Patients were brought to the Stockport Infirmary, in whom the cause and nature of the injury were recorded.

326 not in factories:	243 in factories:
237 men.	155 men.
89 women.	88 women.

* I am of opinion that the affairs of a Bank need reformation if it be found that the management expenses exceed $80 + \cdot 00225 h$, or the treasurer's balance is on an average greater than $f + \cdot 0075 h$.